DOCUMENT RESUME

ED 399 630 EA 027 875

AUTHOR Mosborg, Susan

TITLE How Money Matters to School Performance: Four Points Policymakers Should Know.

INSTITUTION Northwest Regional Educational Lab., Portland, Oreg.

SPONS AGENCY Department of Education, Washington, DC.
PUB DATE May 96
CONTRACT RJ96006501
NOTE 33p.
PUB TYPE Information Analyses (070)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Economically Disadvantaged; *Educational Equity (Finance); *Educational Finance; Elementary Secondary Education; Equalization Aid; *Financial Support; Income; *Performance; Resource Allocation; *School District Spending; School Funds; Tax Effort

ABSTRACT

Education researchers have moved beyond asking whether money matters to school performance. They are now investigating how money matters to student learning and achievement. There are three questions that policymakers and citizens must address: How much money are they willing to spend on the education of the young? How should it be fairly spent? How should it be wisely spent? This document summarizes research on the spending patterns of schools and the money-performance link. It identifies four points that policymakers should know. First, money is related to student learning outcomes, but the dynamics of human learning mean that there is no one-to-one correlation. Second, school districts spend their money in remarkably consistent proportions, regardless of their wealth, and the bulk goes to instructional services. However, there are large differences in wealth and student need across schools and districts that strongly affect performance. Third, money also matters by maximizing a wide range of opportunities to learn. New knowledge about teaching and learning points to the importance of strategic investments as well as funding "the basics," if more children are to learn and perform at high levels. Finally, after three decades of modest equalization efforts by the states, reliance on local funding of schools is now rising, just as income inequality among communities is growing. Poor children are hardest hit. The appendix outlines the evolution of "equal educational opportunity" as a legal concept. (Contains 52 references.) (LMI)

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ED 399 630

THE Northwest Regional Educational Laboratory

PROGRAM REPORT

HOW MONEY MATTERS TO SCHOOL PERFORMANCE

Four Points Policymakers Should Know

Susan Mosborg

May 1996

Planning and Service Coordination
Rex Hagans, Director

U.S. DEPARTMENT OF EDUCATION
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Northwest Regional Educational Laboratory
101 S.W. Main Street, Suite 500
Portland, Oregon 97204

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This publication is based on work sponsored wholly or in part by the U.S. Department of Education under Contract Number RJ96006501. The content of this publication does not necessarily reflect the views of the department or any other agency of the U.S. government.

THE QUESTION IS NO LONGER "DOES MONEY MATTER?" IT IS "HOW?"

Education researchers have moved beyond asking *whether* money matters to school performance. Researchers are now investigating *how*. How does money matter to student learning and achievement? Where can it make a difference? That is the 250 billion dollar question.

There is a persistent myth that money does not matter in education, told in two versions. One says there is no systematic relation between spending and achievement. The other says we have been spending more but have not seen a commensurate gain in test scores. Both versions have been debunked as overly simplistic and misleading. Money does matter to performance in today's schools. The evidence is ample and compelling.

The danger of the money doesn't matter myth is that it distracts policymakers from the very real need to fund education equitably and align resources with school improvement. Believing that money doesn't matter leads to reckless cuts to education budgets. These cuts stand to unravel the quality of schooling and widen the opportunity gap, especially hurtful to the quarter of children in the Northwest who now live in or near poverty (Annie E. Casey Foundation, 1995).

The goal of education reform—to educate all students to levels historically expected of but a few—presents a staggering fiscal challenge. First, it means **adequately** funding schools. Second, it requires examining the fiscal patterns in the education system as a whole, then funding schools **equitably** and aligning resources with school improvement.

So far in the 1990s, education spending has been stagnant. When the economy grew between 1990 and 1995, inflation-adjusted per-pupil spending did not. A property-tax revolt persists at the local level, states are using new resources for various forms of tax relief and prison funding rather than for education, and federal funds for education are likely to remain flat (Odden, 1996). To make matters worse, the revenue gap between affluent and poorer school districts is growing. The local share of school funding is now on the rise and the state and federal share has begun to fall, a trend expected to increase the revenue gap across districts. There is no disputing that inequities in school funding exist and that poor children bear their burden.

Equitable education is a cornerstone of democracy. The nation's shared principles do not permit the division of children into winners and losers. "Our constitutional values require that each child have an equal claim on whatever resources we provide for public education. In practical terms, this means spending at least as much money on children living in poverty as we spend on wealthier children" (Molnar, 1995, p. 58).

Today, few equate educational opportunity solely with funding. The policy focus has shifted from equalizing school spending per se to emphasizing appropriate compensatory resources for disadvantaged children (vertical equity), and ensuring educational resources are well used in support of improved student learning. Appendix A traces the development of equal educational opportunity as a legal concept in the United States.

As the drive to improve public education progresses, there are three questions policymakers and citizens must address: How much money are they willing to spend on the education of the young? How should it be fairly spent? How should it be wisely spent?

Research is beginning to describe in unprecedented detail the spending patterns of schools, and the money-performance link. Understanding this link is key to informed debate among education stakeholders. This report is intended to increase policymakers' knowledge of the ways in which school funding and performance are connected.

How Money Matters to School Performance: Four Points Policymakers Should Know

Point 1. Money is related to student learning outcomes, but the dynamics of human learning mean there is no one-to-one correlation.

Point 2. School districts spend their money in remarkably consistent proportions, regardless of their wealth, and the bulk goes to instructional services. However, there are large differences in wealth and student need across schools and districts that strongly affect performance.

Point 3. A chief way money matters is by maximizing a wide range of opportunities to learn. New knowledge about teaching and learning points to the importance of strategic investments as well as funding "the basics," if more children are to learn and perform at high levels.

Point 4. After three decades of modest equalization efforts by the states, reliance on local funding of schools is now rising, just as income inequality among communities is growing. Poor children are hardest hit.

Point 1: Money is related to student learning outcomes, but there is no one-to-one correlation.

- Research confirms that numerous factors are moderately related to learning outcomes. But few, if any, single variables are strongly related to learning. It is when these variables are taken together that they are powerful determinants of school effects.

- Fundamentally, the education process is a function of human relationships. When schools are organized in ways that increase the quality and quantity of the student's learning interactions, productivity is higher.

- The myth that money doesn't matter stems from the flawed assumptions of early educational productivity studies.

- Schooling efficiency cannot be judged from the ratio of school spending to student achievement alone. It also depends on: (a) change in the real cost of school inputs; (b) change in the legal obligations and societal expectations of schools; (c) change in children's status outside school; and (d) change in achievement performance expectations.

The Dynamics of Learning

In the past several decades, there has been an explosion of knowledge about how people think and learn. As anyone knows who has followed discoveries in the news about the brain, human development, and the mind-body connection, learning is richly dynamic. Early philosophers considered students empty vessels into which the teacher need merely pour knowledge. Today, learning is known to involve a lively orchestra of influences.

"Physical processes can often be explained as functions of a small number of variables interacting in simple ways. In contrast, schooling processes respond to a multitude of influences interacting in kaleidoscopic patterns" (Wang, Haertel & Walberg, 1990, p. 37). Research has confirmed that a large number of factors are moderately related to learning outcomes. Decades of research have underscored the primacy of student, classroom, home, and community influences on learning. Researchers have also highlighted the importance of metacognition (thinking about thinking), classroom management, quantity of instruction, classroom interactions and climate, and the peer group. But it is these variables taken together that are powerful determinants of school effects (Wang, Haertel & Walberg, 1990).

Researchers point out that a factory model of production poorly explains how learning outcomes are produced. According to educational economist David Monk, it is misleading to think that there is a sharp distinction between inputs and outputs in education. Education is a series of nested production processes. Inputs of various sorts are combined to produce multiple outputs that in turn serve as the ingredients of subsequent production processes. In schooling, at least two kinds of production processes take place. First, discrete inputs—a collection of students, space, instructional materials, and a given teacher's time—are transformed into an educational service (or opportunity). Second,

this configuration of school resources is combined with the student's own time and effort to produce some change in the student's capabilities, understanding, or knowledge. These two types of production processes are interactive and cumulative over time (Monk, 1992, 1994a, 1994b).

Implications for School Spending

The complexity of the learning process has implications for school spending. On the positive side, the quality and quantity of the student's learning interactions are the heart of effective education. Certain organizational arrangements enhance these learning interactions.

- Educational researchers and practitioners recommend using fewer pull-out programs, which tend to gobble compensatory and special education dollars in extra staffing without fundamentally improving the quality of the student's basic learning interactions (Odden, Monk et al., 1995).

- Particular grouping arrangements can alter the quality and quantity of the direct instructional interactions between student and teacher that are needed to acquire particular knowledge or skills (MacPhail-Wilcox & King, 1986a, p. 431).

- Students can experience learning gains from interactions with other students as well as with the teacher (MacPhail-Wilcox & King, 1986a, p. 431).

- Similar effects are possible from interactions with family and community members or from material resources like books, videotapes, and televisions and computers in the home, community, or school. If these interactions increase students' acquisition of knowledge that teachers seek to develop, they have successfully substituted for classroom-based pupil-teacher interactions (MacPhail-Wilcox & King, 1986a, p. 431).

- High school students benefit when they take a full load of courses with solid academic content.

Indeed, certain configurations of educational inputs transcend the sum of their parts.

- When parents regularly contact teachers and administrators, become active in parent organizations, interact with parents and children from other families, and volunteer in the classroom, they have a positive effect on student learning (Monk, 1992).

- When teacher roles are restructured to better reflect the constructive, interactive nature of the learning process, and educators view teaching as collegial work informed by collective planning and problem solving and by continual reflection on practice with colleagues, student learning is enhanced (Darling-Hammond, 1994b).

One must be keenly realistic about the potential for efficiency gains. Many schools are already organizing to make these gains but suffer from basic inadequacy or instability of funds. Sufficient, reliable funds are needed both to make the transition to and sustain proven, more powerful models of schooling.

Discerning Resource Effects

Given the multitude of variables that interact to produce learning, the problem for school finance is that resource cause-effect relationships can be difficult to identify at the macro level. On a daily basis teachers must apply principles of education that involve ambiguity: (1) statistical relationships with modest levels of probabilities; (2) unforeseeable new contingencies; and (3) interpersonal interaction with students that is rarely as straightforward as the rhythms of a machine (Nelson, 1995).

Problems with Early Productivity Studies

The claim that school funding factors have generally not been found to translate dependably into increased student achievement comes from a particular branch of research—that of productivity or production-function research by economists. Strictly defined, a production function, educational or otherwise, is a mathematical formula that describes the maximum level of outcome possible from alternative combinations of inputs—bang for the buck. In theory, if managers have performance goals, and know the cost and effect of each alternative input, they know the production possibilities. They can then choose the right mix of inputs to get the biggest impact. A majority of education production-function studies have measured output by standardized achievement test scores, but others have also looked at results like student attitudes, attendance, college continuation, and dropout rates.

One of the most influential works from the field is Erik Hanushek's 1986 analysis of results from early production-function studies (Hanushek, 1986, 1989). Hanushek reviewed 187 input-output equations reported in 38 separate publications. He chose equations that included on the input side one or more of the following: per-pupil expenditures, teacher experience, teacher education, teacher salary, teacher-pupil ratio, administrative inputs, and facilities. These, he reasoned, are the major schooling inputs paid for, and are manipulable by policymakers and administrators, at least more readily than, say, student native ability. From this review he concluded "there is no strong or systematic relation between school expenditures and student performance." Hanushek points out that "strong" and "systematic" are not scientific terms but are intended to convey that the major schooling inputs he reviewed were not found to be strongly related to student outcomes (typically student achievement test scores) in consistent ways across studies (in terms of either direction or magnitude).

Hanushek's analysis has been widely criticized on both conceptual and methodological grounds (Greenwald, Laine & Hedges, 1996). At the most basic level is the problem of the flawed assumption that single inputs or variables should be shown to have strong effects across a wide variety of circumstances. The interactive, multivariate nature of the learning process reveals that variables acting together have powerful learning effects.

Implications for Measuring Resource Effects

Accounting for resource stock vs. flow. Business managers know that a production tool may be in inventory (stock), but it does little good if it's not on the line (flow). Similarly, to discern the real relation between school spending (stock) and student achievement (outcome), it is necessary to examine the actual flow of resources to the student (opportunity to learn). A full range of educational policy decisions (not just education finance decisions) affects the actual flow of resources that reach students. Resource allocation studies on schools have confirmed that "decisions made by many individuals at each level of the educational hierarchy affect students' access to and consumption of school resources" (MacPhail-Wilcox & King, 1986a, p. 416). In measuring money's impact, it is a mistake to limit evaluation to gross-level financial inputs, whether because these are the inputs policymakers directly control or because these are the ones education advocates often clamor to increase. It is essential to account for the difference between resource stocks and flows.

The importance of assessing opportunity to learn has often been unfairly maligned as an effort to prevent the shift from an input-driven system to an output-driven one. In fact, it's just the opposite. Choosing strategies that will achieve desired outcomes is only possible with an accurate understanding of resource flows. "Reforms and school improvement plans must be constructed on a solid knowledge base about relations among school resources, processes, and outcomes" (MacPhail-Wilcox & King, 1986a, p. 417).

Accounting for school wealth and student need. In evaluating resource impacts at the macro level it is also critical to account for the differences in the actual resources available across schools, as well as differences in student need.

"Resource allocation research at all levels of analysis indicates strong relations between the quantity and quality of resources available and such demographic variables as wealth, socioeconomic status, and racial composition" (MacPhail-Wilcox & King, 1986a, p. 427). For various reasons educational funding, resources, and opportunity are not evenly distributed (see discussion on pages 14-15, The Unequal Distribution of Educational Funding & Opportunity). High socioeconomic schools and districts have more public educational resources, and the resources they have go farther to provide students with opportunities to learn.

Wealth and socioeconomic status are highly correlated with the financial and educational resources allocated to schools. It is not surprising, then, that these factors account for a good deal of the variation in student performance. Furthermore, "it is difficult to isolate the influence of resource practices on student and school productivity without also controlling for these highly correlated resource conditions and student body characteristics" (MacPhail-Wilcox & King, 1986a, p. 428).

To deal with this problem, many researchers in recent decades have turned their attention to inductive and microanalytic approaches. Rather than look at the relation between spending and achievement over many schools and districts as a whole, these approaches focus on individual schools, classrooms, and students, and examine what resources are needed to produce particular levels and distributions of desired educational outputs. This information, combined with macroanalytic data about school spending patterns, resources, and achievement, is leading to an increasingly sophisticated understanding of schooling. Most researchers also believe "it is imperative to consider resource allocation patterns and practices relative to particular outcomes desired" (MacPhail-Wilcox, 1986a, p. 429). Today the expected outcomes of schools are greater than ever. This means that existing resource allocation patterns and practices must be reexamined relative to new performance goals.

Recent Macro-Level Studies Reveal the Importance of Money to Student Learning

Given the operation of so many interactive variables on the learning process, it is surprising to find the strength of resource impacts that we do. Research has documented that teacher expertise, salary levels, professional preparation, class size, and opportunities for direct teacher-student instructional interactions are key resources that noticeably impact student achievement. In turn, the quality and quantity of student learning interactions is influenced by a broad constellation of resource factors, such as number of teacher preparation periods, support staff, learning materials, school facilities, and extracurricular offerings.

■ **MacPhail-Wilcox & King (1986b).** MacPhail-Wilcox and King reviewed the early production-function literature specifically to identify the relationship between student achievement and (1) teacher characteristics, (2) policy and administrative variables, and (3) facility and fiscal characteristics. They discovered the following:

- **Teacher Characteristics.** "...Teachers' verbal achievement, experience, salary levels, and professional preparation are significantly related to student achievement. As a generalization, these observations are consistent with correlations reported in resource allocation studies" (p. 209).

- **Policy and Administrative Variables.** "As a group, class size indices (size of specific class, specific staff to pupil ratio, class size, and pupil-teacher ratio) overwhelmingly show significant relationships with student achievement measures...However, findings for measures which are more exact indices of "opportunities for direct teacher-student instructional interactions" (size of specific class, specific staff to pupil ratios, and number of special staff) are more consistent than are those for more inexact proxies (average class size and overall pupil-teacher ratios)" (p. 210).

  Most students profit when they have more opportunities for direct teacher-student instructional interactions. "These opportunities may be influenced by organizational arrangements which reduce the number of students which a teacher is to instruct during a particular unit of time, enhance opportunities for positive teacher substitution effects through heterogeneous grouping, and insure that misbehavior does not dilute academic instructional time. In addition, the quality of these instructional interactions has important implications for student achievement. The number of preparations that teachers have and the grouping patterns are organizational arrangements which would seem to influence the quality of instruction" (p. 214).

- **Facility and Fiscal Characteristics.** "Studies of relations between facilities, fiscal conditions, and student achievement indicate that wealth and expenditure levels are somehow linked to student performance. However, the relations appear to be more indirect than are relations between educational resources and student achievement. [For example, the evidence of significance or nonsignificance between student achievement and total expenditures per pupil or instructional expenditures per pupil is about evenly split]. In fact, fiscal-achievement relationships may simply be artifacts of the particular populations and fiscal conditions found in educational units. If so, fiscal differences may denote the variable educational needs of individual school units, and thereby indicate the need for substantially different fiscal resources. In other words, it is important to disen-

tangle the effects which fiscal differences among school units have on educational resources, teaching-learning processes, and student achievement" (p. 219).

■ **Ferguson (1991).** Ferguson analyzed data on nearly 900 Texas school districts comprising over 2.4 million students, for the factors influencing students' scores on statewide standardized reading exams. Ferguson found:

- Differences in the quality of schooling accounted for one-quarter to one-third of the variation in students' reading scores among school districts. The single most important cause of higher student learning was teacher quality.

- Both teacher quality (as measured by teachers' performance on a required statewide recertification exam, experience, and master's degrees) and class size (class size above or below a certain level) are correlated with higher student achievement.

- Though teacher quality and students' socioeconomic status are highly correlated, good teachers have distinguishable impacts on students' exam scores—effects that are separate from those, for example, of well-educated parents.

- Expenditure levels influence district capacity to buy higher-quality teachers and to provide other instructional services, such as extracurricular programs.

- Per-pupil expenditures have a significant effect on student achievement when regional cost differentials are accounted for (by controlling for local salaries in competing occupations and school districts).

- The strength of effects on achievement increases as the funding factors examined move closer to direct instruction of students. That is, teacher salaries show a stronger relation to achievement than do general instructional expenditures, which show a stronger relation to achievement than do general operating expenditures.

Ferguson concludes that "equal salaries will not attract equally qualified teachers to dissimilar school districts: for any given salary, teachers prefer school districts with higher socioeconomic status and judge the attractiveness of teaching in a given district against the allure of other opportunities. This suggests that a state policy of salary differentials...will be necessary if each district is to get its proportionate share of the best teachers" (p. 489). "For the state as a whole, however, upgrading the quality of schooling would require more than salary differentials that rearranged how teachers distributed themselves across competing school districts. Primarily, it would require measures to assist existing teachers in efforts to upgrade their skills, to retain talented and experienced teachers, and, over the longer term, to attract academically stronger candidates of all races into primary and secondary school teaching" (p. 467).

■ **Card & Krueger (1992).** Card and Krueger combined data from state school systems during the first half of the twentieth century with census data on men's ages, races, and earnings to find out if the characteristics of the state school systems where the men attended school could predict their earnings decades later, even for men who no longer lived in the states where they attended school. The study controlled for nonschool variables often thought to influence education, such as parental income, years of parental education, and state and regional affluence. Card and Krueger found:

- Teacher salaries, the number of students per teacher, and the length of the school year were each statistically significant predictors of men's later earnings.

- In related research the authors found similar but even stronger effects for black males.

■ **Reder (1995).** Reder examined whether characteristics of students, teachers, homes and families, and schools and districts could predict fourth-grade reading scores on the 1992 National Assessment of Educational Progress at the building level. He found:

- District expenditures per pupil have a substantially positive, statistically significant impact on reading achievement, once the effects of other variables (such as district per-capita income, average level of parental education, and racial or ethnic diversity) are taken into account.

- Other variables that make a difference are the amount of time students read for pleasure, the presence of parents in the home, the literacy materials present in the home, and the amount of time spent watching television.

- When these variables are controlled, expenditures per pupil have a major impact on reading achievement among the nation's fourth-graders.

The Ratio of School Spending to Student Achievement

Schooling efficiency cannot be judged from the ratio of school spending to student achievement alone. It is true that total school spending has steadily risen (by 206% in inflation-adjusted dollars between 1960 and 1990 alone) while overall student achievement has remained flat. But by itself this ratio is meaningless. The nation's Gross Domestic Product (GDP) increased by 248 percent during the same period (also in inflation-adjusted dollars) (Statistical Abstract of the United States, 1994, p. 446). There is no objective reason why school spending should rise or fall with GDP (Ram, 1995). It simply reflects policy choice. However, it is not unreasonable to argue that the nation's school spending should keep pace with its economic growth in an era of increasing global competition and the information age. It is also important to understand how the real costs of school business have substantially increased.

One reason is an economic principle. Princeton University economist William Baumol, an expert on why public services cost more than private services, points out that improvements in productivity are very difficult to bring about in government services. This is not because of bureaucratic inefficiency or ineptitude, but because the work government workers do is labor intensive and does not lend itself to the improvements created by technology in the same way as do capital-intensive industries in the private sector. In short, improvements in productivity are spread unevenly throughout our economy. We must therefore spend a greater share of our income to maintain the constant level of services in some sectors and a smaller share to maintain a constant level in others. Baumol uses the following example. It takes a person the same amount of time to play a harpsichord solo today as it did 260 years ago, while it takes far less time to make a watch. "This means that in 260 years the price of a concert ticket has risen about 100 times as fast as the price of a watch. Thus watches are no longer a luxury, while concert tickets are. However, no one blames this difference on 'bureaucratic bloat' in the music industry" (Houston, 1994, p. 135). Good schooling is undeniably labor intensive.

Rising Input Costs and Obligations

Labor. The average teacher salary in 1992 was 46 percent above its 1960 level after inflation. The average teacher, however, had more years experience, suggesting that teachers in 1990 actually earned less than their mid-1970s counterparts with the same level of experience. In 1992, the average salary for all teachers—including those with master's and doctoral degrees—was still only $34,413 (Odden, Monk et al., 1995). Private schools on average pay less than their public school counterparts.

Health Care Benefits. A study of school spending growth in New York state found that health care expenditures accounted for nearly 10 percent of the spending growth between 1980 and 1989, and more than 40 percent of the growth between 1989 and 1992. In that study, health care benefits grew from 2.0 percent of the average school district operating budget in 1980 to 5.5 percent in 1992 (Lankford & Wyckoff, 1995).

Special Education Enrollment. Richard Rothstein has estimated that "nearly 30 percent of the new money recently allocated for education went for special education programs" (Berliner & Biddle, 1995, p. 82). In fact, special education, as we know it, did not even exist in 1960. Today, "roughly 20-35 percent of all K-12 expenditures are directed to the 10 percent of the student population who qualify for special education " (Carson, Huelskamp & Woodall, 1991, p. 86). The relative cost of

serving the average special education student has not changed. It's about 2.3 times the cost of serving the average student. There are simply more students to be served. Federal law requires school districts to provide appropriate special education services for students from ages three to 21. The portion of the total education budget devoted to serving special education students is estimated to be about 25 percent nationwide (Odden, Monk et al., 1995). Certainly the growth in special education funding cannot be expected to have produced a commensurate gain in student achievement test scores among American students overall (Carson, Huelskamp & Woodall, 1991).

Expanded Obligations. One educational administrator explains the growth in school costs over the past 20 years with the following litany of expanded obligations (LoVette, 1995):

- **Court decisions:** Busing; provisions for private schools whereby private schools now receive funding for transportation, textbooks, and many other services dictated by federal programs; education of children of illegal aliens; bilingual education and English as a second language; provisions regarding use of school facilities whereby if schools rent to one group they must rent to all; increasing insurance costs; removal of hazards; litigation over student injuries and alleged violations of students' personal freedoms.

- **Federal regulations:** Title IX requiring equal opportunities for female students, especially affecting the cost of school sports; Age Discrimination Act of 1978, stipulating teachers and others cannot be forced to retire, as long as they are able to carry out the responsibilities of their positions; legislation for special students; students with AIDS and other communicable diseases.

- **State legislation:** New bus safety standards; mandates for reducing class size, especially in the early grades; required kindergarten; collective bargaining laws; required testing programs; new safety standards; increased accountability requirements; imposed programs and curricular offerings.

- **Societal expectations and demands:** Weapon detection systems; school security systems and paid police patrols; alternative settings; school health clinics and other health services; pursuing truants; air conditioning; increased use of technology; greatly increased costs for purchasing textbooks, library books and the like; before- and after-school care.

Rising Performance Expectations

Many argue it's remarkable that schools have done as well as they have, considering the increasing challenges and responsibilities and flat or even decreasing financial support (Berliner & Biddle, 1995; Bracey, 1995). Nearly all recent analyses of student achievement test data over the past decades conclude that while there have been changes, student achievement in 1990 was at about the same level as in 1970, when it had grown to historically high levels. The silver lining within these results is that about half the achievement gap between minorities and nonminorities was closed over this same time period (Odden, 1994a).

Positive trends in student achievement test data, however, are commonly misreported in the press, leaving the impression of huge declines (Berliner & Biddle, 1995; Bracey, 1995). Such is the case

with many recent reports of "poor" student performance on the National Assessment of Education Progress (NAEP)—the "nation's report card"—on the history and geography subtests, for example.

It is critical to acknowledge that the NAEP categories of "basic," "proficient," and "advanced" represent evaluation of student performance against brand-new levels, benchmarked to the highest in the world. No nation has ever educated the majority of its students to such high standards. This is not to say that targets for student performance should be lowered, but that people must understand the enormous rise in expectations—and the unprecedented challenge to school productivity—the new standards represent.

Point 2: School districts spend their money in remarkably consistent proportions, regardless of their wealth. Current spending patterns are inequitable due to large differences in wealth and student need across schools and districts.

- School districts typically spend 60 percent of their resources for instruction, regardless of their wealth.
- Extensive studies of school fiscal data have found no evidence that educational resources are squandered.
- There is no evidence of an "administrative blob."
- Educational funding and opportunity are not evenly distributed: More public resources (as well as private) are available to students in prosperous communities than to students in communities experiencing economic stagnation or decline.
- Poor schools spend more of their instructional resources just meeting students' basic needs. This leaves less money for advanced courses and other curricular and extra-curricular activities.

School District Spending

One of the strongest findings from recent educational finance research is that the share of per-pupil expenditures devoted to instruction is a remarkably consistent 60 percent. "Researchers have analyzed these numbers across states and districts both large and small, high- and low-spending, rural and urban, with high and low percentages of minority students, and with high and low concentrations of poverty. They found that districts tend to spend their resources in about the same proportion" (Odden, Monk et al., 1995, p. 164).

Typical School Spending

60% **Instructional Services.** Regular classroom instruction for core academic subject and other content areas, and instruction for students with special needs (special education for the physically and mentally handicapped, instruction for those with limited-English proficiency, and help for low-achieving students).

10% **Administration.** 3-4 % central office, and 6-7% school site.

10% **Operation and Maintenance of Physical Plant.** (Excluding funds for depreciation, which are rarely budgeted in education.)

9% **Instructional Supports.** For example, student services, curriculum development, and professional development.

Unprecedented knowledge about school spending patterns nationwide comes from a five-year multi-faceted study recently completed by the Finance Center of the Consortium for Policy Research in Education (CPRE), a federally sanctioned group of leading educational finance academicians (Odden, Monk et al., 1995). Among their findings:

- "There is little empirical support for the theory of the educational 'administrative blob.' Expenditures on administration tend to be modest by comparison to benchmarks for other organizations" (p. 165).

- "Administrative expenditures in the largest urban districts are smaller in percentage terms than the average for their respective states" (p. 165).

- "Further, the percentages spent on administration in these districts are so low that, if the value added by central office services were deemed not 'worth it' and the central office were eliminated, there would be very little money to disperse to school sites. Moreover, since many central office functions—fiscal services, transportation coordination, personnel administration, and so on—need to be performed at some level, even eliminating central offices entirely would not allow a district to use all central office administrative dollars for other purposes" (p. 165).

- "School districts do not spend lavishly on transportation and school buses; indeed, school buses could be much safer and more comfortable" (p. 164).

- "Today's school buildings are generally modest" (p. 164).

- "Teachers are rarely provided offices, telephones, or secretarial services that are common supports in nearly all other service sectors" (p. 164).

- Far fewer dollars are spent for the maintenance of the physical plant of a school than would be spent by any private corporation on maintaining its capital facilities" (p. 164).

The Unequal Distribution of Educational Funding and Opportunity

No one disputes the existence of disparities in public education funding. Ninety percent of school funding is raised through local property taxes and general state revenues. Poor and property-poor communities are understandably less able to raise education dollars from their residents than wealthy communities. Similarly, states vary in their capacity and effort to raise revenue.

A majority of states have faced at least one legal challenge to the constitutionality of their education financing system since the late 1960s. The essential problem is this: "By requiring students to attend certain schools but not requiring equity among schools, states require inequity in schooling" (Verstegen, 1994, p. 373). Less privileged children attending poorly funded schools are guaranteed inferior education, not equal opportunity.

Recently, state courts have moved beyond consideration of funding equality to also examine the issue of adequacy. "Even if funding is equal in terms of the tax base per child across school districts, there may not be enough money in the system to provide an adequate education system...In the

Alabama case [of 1993] the judge ruled that the finance structure was equal but inadequate. Now Alabama must design a major educational reform program, and put a lot of money into the system to make it more adequate so that it will meet the state education standards" (Odden, 1994b, p. 3). Increasingly, the legal concept of equal educational opportunity is interpreted to mean access and outcomes consistent with a quality education—not a minimum or basic education (Verstegen, 1994).

State constitutions and their interpretations vary. But neither the existence of funding inequity, nor the fact that poor children bear the burden, is in question. In more than half the states in the nation, including all Northwest states, the difference in per-pupil spending across school systems is more than one and one-half fold (Riddle & White, 1994; Hertert, Busch & Odden, 1994). This is the case despite years of litigation and legislation to change state finance systems. Fiscal disparities across all school districts in the country are even greater than those measured within most states (Picus & Fazal, 1995). These disparities pose a major problem for state and national education goals. "Indeed, if the goal is to educate all students to mastery over complex academic subjects, the current system—in which some students have only $2,500 spent on them, while others have $15,000 spent on them—is hard to rationalize" (Odden, Monk et al., 1995, p. 163).

A recent study confirmed that school districts with higher concentrations of poor children have fewer public education dollars to spend (Parrish & Matsumoto, 1995). The National Center for Education Statistics for the first time combined its database on school district revenues with 1990 census data mapped to school district boundaries. It found that even after the inclusion of federal and state compensatory aid, there is a negative relationship between total expenditures per student and the percentage of school-age children in poverty (that is, districts with higher concentrations of poor students spend less). Other research documents that poor students have less access to good educational resources within districts as well. Inequities are embedded in the very structure of how educational resources and opportunities are distributed across districts, schools, and classrooms (Darling-Hammond, 1995a; Oakes, 1990).

Another recent study by education finance experts estimated in detail the price of a modest equity effort—bringing all school districts in each state up to the revenue level of the median (middle) revenue district in the state. The estimated price to bring the bottom half of districts up to the middle level in each Northwest state (based on 1989-90 expenditures and dollars) is as follows: Alaska, $54M (7.6% increase in state K-12 budget), Idaho, $19M (4.5% increase in state K-12 budget), Montana, $24M (7.11% increase in state K-12 budget), Oregon, $112M (13.8% increase in state K-12 budget), and Washington, $171M (5.8% increase in state K-12 budget). The price nationally is an estimated $11.4B in 1994 dollars (Hertert, Busch & Odden, 1994).

Dollars and Disadvantaged Students

Where does this leave students from less advantaged schools? While all school districts typically spend 60 percent of their resources on classroom instruction, less advantaged schools already spend a higher portion of their instructional budget on core academic subjects than do more advantaged schools. A larger share of the 60 percent instructional resources in less advantaged schools is devoted to special needs (such as catch up instruction in core academic subjects) because their students come to school with a greater array of needs.

A related point is often overlooked but essential to grasp: Allocated resources do not go as far in providing students in disadvantaged schools opportunity to learn. Sociologist James Coleman eloquently describes why this is so.

> A school board can spend identical amounts in two different schools (or two school boards can spend identical amounts in two different systems), so that the inputs as disbursed by school boards are identical. But if texts depreciate more rapidly, through loss and lack of care, in one school or one system than the other, then the text as received by a given child (say the second year after the new text is issued) constitutes a *lesser* input of educational resources to him than if he were in the other school or the other system. The examples could be multiplied endlessly: If teacher salaries in a city and the surrounding suburban area are equal...then the city is not competitive in salary, and loses the best teachers to the suburbs. Again, the inputs as disbursed by the school boards are equal, but the inputs as received by children are not. As another example, if the expenditures on window glass in a city school in a lower-class neighborhood and a suburban school were equal, the child in the city school would spend much of his time in classrooms with broken windows, while the child in the suburban school would not. Furthermore, nearly all the examples in which this "loss of input" occurs between disbursement and reception go in the same direction, that is to reduce the resources received by the average [disadvantaged] child...Such a difference between inputs as disbursed and inputs as received creates enormous difficulties for any research designed to measure the "amount of resource input" from a governmental unit to any group in society (Coleman, 1990, p. 138).

Coleman argues that because of the gross social inequities of children's lives outside school, only by providing disadvantaged students more educational resources will schools do anything to reduce the inequities with which students enter school. Equitable funding is just a start; the real need is compensatory funding.

Point 3: A chief way money matters is by maximizing a wide range of opportunities to learn. It is vital to make strategic investments geared to improving students' learning interactions as well as fund "the basics," if more children are to learn and perform at high levels.

- Opportunity to learn is the single most powerful predictor of student achievement.
- Extensive studies of school fiscal data have found that schools with substantially more money offer considerably more of everything to their students.
- Optimal resource use is situation dependent. Resources may substitute for one another, e.g., parent-volunteers may substitute for paid teacher aides, but the real cost of doing so varies from school to school.
- Good strategic investments are those which build capacity to improve students' learning interactions. These include (1) infrastructure investments—in teacher expertise, school facilities, and technology, for example, and (2) individual school-determined investments, which flow from the school's vision, goals, and educational program plans.

Opportunity to Learn

Indeed, it is no mystery how to improve student performance. Students learn what teachers and schools engage them in learning. If schools teach algebra and writing, students will learn to do algebra and to write within an acceptable range of performance. Part of the impetus for raising high school graduation requirements in the 1980s was research that showed American students doing poorly on international tests of math and science achievement simply because American students were not taking very many math and science courses in high school. Furthermore, the credits they did take were concentrated in low-level courses.

Opportunity to learn, however, extends far deeper than course requirements. The experience of the early 1980s during the first wave of school reform showed that it was not enough to raise students' seat time requirements. Students' ability to reach high levels of performance depends on the way students are taught as well. Andrew Porter and other researchers have written extensively about this. So important is students' opportunity to learn what we want them to know that education scholars David Berliner and Bruce Biddle have coined it "Berliner and Biddle's Student Achievement Law: Regardless of what anyone claims about student and school characteristics, *opportunity to learn* is the single most powerful predictor of student achievement" (Berliner & Biddle, 1995, p. 55).

Whether or not to establish standards for opportunity to learn, sometimes called school delivery standards, remains the subject of much debate within education reform circles. Proponents say such standards will hold schools (and, by implication, states and localities) accountable for providing students with the educational programs they need to meet new achievement standards that are benchmarked to the highest in the world. Opponents fear that opportunity to learn standards will keep the focus on inputs and argue that schools should be judged solely on results, i.e., student achievement.

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instead. Regardless of the pros and cons of mandating opportunity to learn standards, it is essential to be aware that wisely utilized money most directly produces opportunity to learn, which in turn combines with students' own efforts to produce learning results.

Richard Allington and Sean Walmsley have investigated children's opportunity to learn to read and write. It is true that children themselves play a critical role in their own literacy development by choosing to become engaged in reading and writing activities or not, by choosing to participate in instruction or not. But the experiences that teachers design for students as literacy instruction affect what students will learn. And what teachers plan affects how actively students will participate. The probability of students achieving valued literacy outcomes—reading and writing with skill and confidence—is increased when we focus on literacy experiences (opportunities to learn) that are likely to produce these results (Allington & Walmsley, 1995, p. 258).

As Linda Darling-Hammond points out, behind such planning for optimal learning experiences lie two crucial factors for opportunity to learn: well-qualified teachers and quality curriculum (Darling-Hammond, 1995b). Like student achievement itself, opportunity to learn is complexly and substantially affected by resources.

Schools with More Money Offer Considerably More of Everything

Research reveals that "as districts get more funds, they continue to spend each additional dollar in roughly the same proportion as the dollars they received previously. The strength of this finding is remarkable" across a variety of school districts and over time (Picus & Fazal, 1995, p. 87). This pattern has not changed much over the past 35 years, but it does not mean all children are treated equally. There are dramatic disparities in per-pupil expenditures across school districts. "This means that districts with substantially more money [are] able to offer considerably more of everything to their students. The increased number of dollars available for instruction translates into smaller class size and higher-paid teachers, but at the same time, additional resources [are] spent on nonclassroom certified staff to provide a range of support to teachers as well" (Picus & Fazal, 1995, p. 95).

Spending Priorities of Elite Public and Private Schools

In October 1994, *Money* magazine published the results of a study it conducted to find out if private school is really worth the expense (Topolnicki, 1994). With the help of SchoolMatch, a company that helps parents select schools for their children, they established that about 10 percent of all public schools (2,000 nationwide) are as outstanding academically as the nation's 1,500 most prestigious and selective private schools. (These elite prep schools, they wrote, educate only about 10 percent of all private school students.) *Money* then surveyed 70 public and private schools in seven categories (advantaged public, nonsectarian prep, religious prep, Catholic, other parochial, average public, and disadvantaged public). "Forget the myth that private schools are the best," the authors conclude. "Our survey shows many public schools are every bit as good—if not better." The study focused on areas that, according to the authors, should concern parents. Among the findings that led *Money* to endorse advantaged public schools:

- "Advantaged public schools have the best-educated teachers—66 percent to 100 percent boast masters or doctorates."

- "Top public schools offer as many challenging courses as prep schools do." Advantaged schools typically offer Advanced Placement classes in at least a dozen subjects, while the majority of schools offer between zero and five, and disadvantaged public schools offer between zero and four.

- "Public schools offer arts and sports programs that often exceed those found at private schools."

- "Facilities at public schools are often at least as good as those at private schools." In fact, it is often facilities that make the advantaged arts and sports and other extracurricular programs possible.

A study of school spending patterns in Pennsylvania found a similar pattern. "High spending districts employed more teachers and provided lower class sizes to their students than did middle or low spending districts. They also had more administrative and support personnel to assist in the management and reinforcement of instruction...Almost all of the high spending districts were located in suburban areas surrounding Philadelphia and Pittsburgh" (Hartman, 1994, p. 105). The authors concluded that "The higher expenditure and taxation levels and the choices related to the quantity and quality of the educational resources made by higher spending districts indicate that they operate in accordance with a perceived cost/quality relationship" (Hartman, 1994, p. 106).

While certain reformers may wish to focus educational resources on core academic subjects, for example, by holding school accountable primarily for student performance in core academic subjects, policymakers must recognize that core academics are not the only measures of school quality, certainly not the only ones American parents traditionally choose—nor American colleges. In a study titled "Making the Cut: Who Meets Highly Selective College Entrance Criteria?," researchers at the National Center for Education Statistics identified five criteria representative of those required for admission to highly selective colleges. The five were grade point average (GPA), Scholastic Aptitude Test (SAT) scores, courses taken, teachers' perceptions, and participation in extracurricular activities (Owings et al., 1995).

Educational economist Richard Murnane has compiled statistics examining the relationships between inputs and student achievement in private schools. "The results show that, just as with public schools, private schools pay for inputs that are not [thought by educational economists to be] directly related to student performance, such as teaching experience beyond the first five years" (Murnane, 1991, p. 459). Murnane argues that "The fact that private schools do this even when under strong competitive pressures makes it illogical to conclude that public schools are wasting money when they pay for experience. Similarly, a number of studies have shown that private sector firms in competitive industries outside of education reward workers for attributes not directly related to productivity. For example, firms pay for experience even though evidence shows that workers with ten years on the job are no more effective than those with four years on the job. The interesting difference lies in the interpretation of these findings. Economists looking at schools point to this pattern as clear evidence of inefficiency. The economists who studied these private sector firms did not conclude that the firms were inefficient—this could not be so, they argue, because these firms were surviving in a competitive economic environment. Instead, the economists conclude, the firms must have good, if not obvious, reasons to reward experience" (Murnane, 1991, p. 459).

Optimal Resource Use

This is not to say that all spending is equally cost effective. Optimal resource use is situation dependent. For example, researchers using cost analysis have compared the cost effectiveness of three well-known models to reform elementary education for at-risk students: Robert Slavin's *Success for All*, Henry Levin's *Accelerated Schools*, and James Comer's *School Development Program*. All involve difficult-to-value resources, costs that extend beyond budgetary concerns. All three models place additional responsibilities on principals, teachers, parents and students that require few, if any, additional out-of-pocket expenditures, but are nonetheless very real costs requiring consideration (Monk & King, 1993). The researchers found that various conditions of the school or community can favor one model over another so that even the model estimated to be most expensive might be the most cost-effective in a particular setting. One important variation found was the ratio of monetary expenditures to time required of principals, teachers, and parents. Researchers in this study determined that program adoption decisions must involve consideration of such factors as the motivation and commitment of teachers and parents, and the faculty expertise (either present in the staff or available through consultation), as well as the long-term financial investment.

These findings point out that it is critical for individual schools to have a good deal of flexibility to make their own resource allocation decisions. Indeed certain educational finance experts such as Allan Odden make decentralization of decision-making authority a central tenet of school finance reform. The advent of decision-support software that can track and show where school dollars go and that can help local decisionmakers assess the cost-effectiveness of various program options has also been important.

Point 4: After three decades of modest equalization efforts by the states, reliance on local funding of schools is currently rising, just as income inequality among communities is growing. Poor children are suffering the most from the resulting funding problems.

- States assumed the lead role in school funding during the 1970s and 1980s driven by equity and excellence concerns.
- Now the trend is toward a declining state role and a rising local role.
- If the trend continues, local school districts will again become the leading funders of schools in the last half of the 1990s. This means increased disparities in educational revenues across school districts, with poor children feeling the brunt of reduced funding.
- It also means the burden will be on residential property-tax payers, as the corporate share of local property-tax revenue has dropped from 45 percent in 1957 to around 16 percent in 1990.
- One of the key differences between the education reform debate in the 1990s and the excellence movement in the 1980s is that there is virtually no momentum to provide substantial additional resources to accomplish new goals.

The Retreat from School Funding

It is well known that reliance on local property taxes creates school finance inequities. Nevertheless, this reliance appears to be rising. "While states played the leading role in funding schools for the 1970s and 1980s, the state and local roles were about equal in 1992-93, and the trend was toward a declining state role and a rising local role. Whether this trend will continue is uncertain. But if it does, local school districts will become the leading funders again in the last half of the 1990s, which will probably increase the disparities in educational revenues across school districts within any given state" (Odden, Monk et al., 1995, p. 162).

The federal share of school revenues is unlikely to increase beyond seven percent. What's less certain is how state and local tax limitation measures, coupled with the new federalism, will play out. The state of Washington's tax limitation measure limits state expenditures. Oregon's limits local property taxes. Furthermore, in Oregon the concurrent decrease in property-tax moneys for schools and the state's equalization of school spending results in inadequate funding for many schools, especially those in urban areas with greater resource needs.

What does this mean for schools? States assumed the lead role in school funding during the 1970s and 1980s driven by equity and excellence concerns. Accomplishments include a narrowing of the gap between the achievement of minority and white students, most dramatically among black and white students; a rise in educational completion at all levels, most dramatically among minority students; a rise in the number of students with college aspirations, most dramatically among female students; a rise in the portion of students taking the recommended number of units of academic course-

work; a return of teacher salaries to levels comparable to that of the 1960s; and extensive experimentation with educational restructuring, from which much has now been learned about the strategies and structures that will enable unprecedented portions of students to master challenging subject matter. These achievements were realized at a time when the status and inequality of children's well-being outside school dramatically worsened, and when society made unprecedented commitment to the education of students with disabilities.

The accomplishments of the 1970s and 1980s were achieved with a substantial infusion of state and federal funds. "One of the distinguishing differences between the [education reform] debate in the 1990s and the excellence movement in the 1980s is that there is virtually no momentum to provide substantial additional resources to accomplish these new goals. In the 1980s many states adopted new taxes. Now the assumption is that new and substantial resources are not needed. This means that there are intensified demands on schools and districts [many of whom are] already experiencing severe fiscal stress and no significant funding for new staff or serious new training" (Orfield, 1994, p. 407).

The problem is not limited to operating expenses. According to a 1995 Government Accounting Office (GAO) report, one-third of the nation's schools need extensive repair or replacement. The total cost is estimated at $112 billion (about 40% of all current spending on elementary and secondary education), with high-poverty school districts in greatest need (GAO, 1995). A recent U.S. Department of Education study found that school districts with more school-age children in poverty have fewer overall resources and spend greater percentages of their budgets on core instruction than other school districts, with a tendency to forego long-term capital outlays (Parrish & Matsumoto, 1995).

If state and federal funding continues to decrease, communities in economic stagnation or decline stand to be hardest it. It is difficult enough to raise local property taxes where incomes and property values are low. Adding to the problem is the stiff competition among communities to attract employers with jobs, which has prompted governments to give corporations generous local property-tax breaks. "In fact, the corporate share of local property-tax revenues has dropped precipitously, from 45 percent in 1957, to around 16 percent [in 1990]. Individual taxpayers have to fill in the gap" (Reich, 1991).

The situation is not simply that poor and middle-income communities are strapped for resources; wealthy communities have more. Since 1977, the gap between rich and poor in America has grown wider. Although analysts disagree on the cause, they concur that the recent surge in inequality is a reversal of more than half a century of American experience in which income inequality fell with economic growth (Nelson, 1995). Between March of 1994 and March of 1995, for example, average compensation costs for all U.S. workers fell three percent—the largest decline since the Labor Department began keeping track of the data in 1988. During the same period productivity rose 2.1 percent and the stock market soared. Productivity has now outstripped wage growth for two straight years (Risen, 1995).

A Shift in the Condition of Children and Families

In the past 30 years a monumental shift has occurred in the status of children and young families. "Thirty years ago, 40 percent of the poor were elderly and 10 percent were children. Today the numbers are almost exactly reversed (Hodgkinson, 1995, p. 178). Roughly a quarter of all Northwest children now live in or near poverty, i.e., 150 percent of the official poverty level (Annie E. Casey Foundation, 1995).

	% of children in or near poverty	% of men ages 25-34 with low income	% of children in mother-0.only households
Alaska	24 %	24 %	101 %
Idaho	31 %	33 %	11 %
Montana	34 %	40 %	14 %
Oregon	28 %	33 %	13 %
Washington	19 %	27 %	13 %
U.S.	32 %	30 %	30 %

In a recent study of income inequality among children in ten Western industrialized nations, the U.S. was shown to have the greatest level of children's inequality by far. The study grouped children by the disposable income of their family, relative to the median disposable income of all families in their nation. Among all ten countries, the average distribution was 10 percent children poor, 9 percent near poor, 70 percent middle class, and 11 percent well-to-do. In the U.S. it was 21 percent children poor, 9 percent near poor, 57 percent middle class, and 13 percent well-to-do. In West Germany, a country whose children have often been compared to American children in efforts to gauge American competitiveness and student achievement, only 3 percent of children ranked poor. In contrast, 21 percent of American children ranked poor (Coder et al., 1989).

"If there is one universal finding from educational research it is that poverty is at the core of most school failures" (Hodgkinson, 1995, p. 178). Poor families can't afford to pay much for school taxes. And it's more difficult to educate children if they are not ready to learn. All but severely disabled students can learn to high standards. Poor children can succeed in schooling, with programs of accelerated learning and compensatory school funding. Until now, however, Americans have tolerated both a high level of children's inequity and insufficient compensatory school funding. Both are on the verge of getting worse. The level, distribution, and wise use of K-12 educational funding are critical mediating factors.

Conclusion

The evidence presented here of the strong and persistent link between school funding and student performance refutes the myth that money doesn't matter to education. Furthermore, it should be apparent that perpetuating that myth harms schools and the children they serve, especially and most tragically, the poorest children. The challenge for policymakers in the 1990s and beyond is to set in place funding mechanisms which adequately and equitably fund schools, building local capacity to improve the quality and quantity of learning interactions for all students. In many cases this will mean increasing compensatory funding. Today's schools are setting higher standards for their students; school funding must also meet these high standards.

APPENDIX A

The Evolution of "Equal Educational Opportunity" as a Legal Concept

Access to the common school

In the early 19th century, equal educational opportunity meant *access to the common school*. The goal was to provide free schooling for all children up to the principal point of entry into the labor market.

Access to a minimum education program

In the first half of the twentieth century, when equality of access was generally available (although racial minorities and children with disabilities were often excluded or placed in separate facilities) equal educational opportunity came to mean *access to a minimum education program*. A common curriculum available to all children, regardless of background, would enable them to function well in a democratic society and contribute to it. Gradually the common-curriculum standard gave way to the assumption of different educational futures for children—vocational and college—that would require differentiated curricula. To achieve equal opportunity, schools would provide the course of study which ostensibly best met the student's needs (although it was not until the 1960s that this was generally expanded to include supplemental funding for special needs students).

"Equality of educational opportunity" judged by schooling effects or results

After the Supreme Court ruling in *Brown vs. the Board of Education* (1954), the concept of equal educational opportunity shifted again. Access to a minimum education program gave way to the notion that equality of educational opportunity *depends in some fashion upon the effects or results of schooling*. Separate was not equal because the *results* of racially separate schools were likely to be different.

Access and outcomes consistent with a quality education

Finally, recent decisions emerging from the school finance litigation of the 1990s are, in many cases, "like the national education goals, redefining equal educational opportunity in the context of the information age and global economy. In this context, equal educational opportunity is interpreted to mean *access* ***and*** *outcomes consistent with a quality education—not a minimum or basic education.*"

Source: Verstegen, 1994.

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Portland, Oregon 97204-3297
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